

# FAA William J. Hughes Technical Center

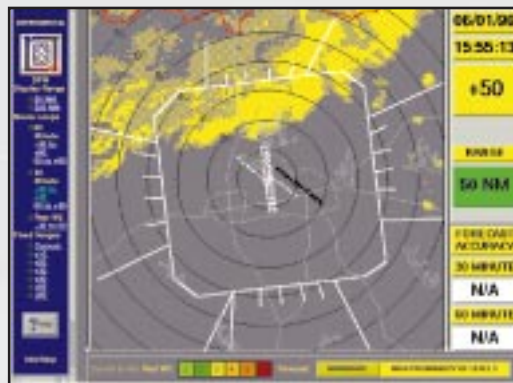
## Aviation Weather Research (AWR)

**PURPOSE:** *The Aviation Weather Research (AWR) program provides funding for and directs research related to weather phenomena affecting all phases of aviation.*

The purpose of the AWR program is to identify and develop science and technology, which will improve safety as well as increase capacity. The program also promotes cooperation between the government and industry in the efficient development of new weather related capabilities.

### BACKGROUND:

The AWR program is managed under AUA-460. Funded activities range from basic research in various phenomena to prototype systems and products designed for both FAA and aviation industry users. AWR funds are divided among eight Product Development Teams (PDTs) along with a small amount of funding for university research efforts. Each PDT is assigned a particular aviation related weather area. The current PDTs are assigned to the areas of turbulence, in-flight icing, model development, Next Generation Weather Radar (NEXRAD) improvements, winter weather, ceiling and visibility, product dissemination and enhancement, and convective weather. Each team is made up of experts in the assigned phenomena or area of focus.

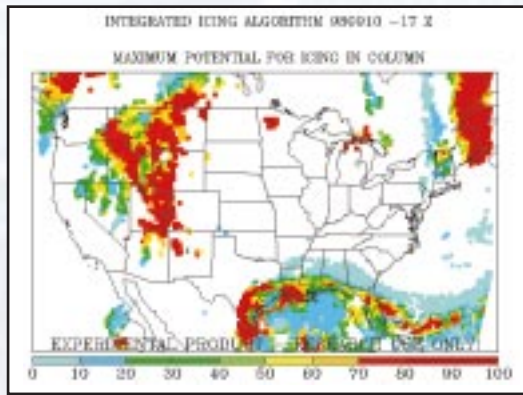


Team members come from the Forecast Systems Laboratory (FSL), National Center for Atmospheric Research (NCAR), National Severe Storms Laboratory (NSSL), Aviation Weather Center (AWC), National Weather Service (NWS), and the Massachusetts Institute of Technology/Lincoln Laboratory (MIT/LL).

### ACCOMPLISHMENTS

Accomplishments under the AWR program include the following:

- Development and implementation of the Rapid Update Cycle (RUC) and the Enhanced Rapid Update Cycle (RUCII) forecast models.
- Development of Supercooled Large Drop (SLD) icing detection and forecast algorithms.
- Issuance of the first SLD warning from the Aviation Weather Center.
- Implementation of the first in situ turbulence detection and measurement capability.
- User and Meteorological Evaluation of the Weather Support to Deicing Decision Making (WSDDM) system and its transition to industry.
- Development of a marine stratus forecast network at San Francisco International Airport.
- Development of algorithms to detect and forecast growth and decay in convective storms.



- Implementation of the Aviation Digital Data Service (ADDS) at the Aviation Weather Center.
- Development and implementation of improved NEXRAD algorithms for tornado, hail, and mesocyclone detection.

#### FUTURE WORK

Future work planned for the AWR program includes:

- Development and implementation of a prototype windshear detection and warning system for Juneau Airport in Juneau, AK (fiscal year 1999-2001).
- Assessment of an Integrated Icing Diagnostic Algorithm at regional airlines (fiscal year 1999).
- Demonstration of the Terminal Area Convective Growth and Decay (G&D) algorithm at airports in Dallas/Fort Worth, TX, and Orlando, FL (fiscal year 1999-2000).

- Demonstration of the National Convective G&D algorithm at several airline locations (fiscal year 1999).

ACT-320 will participate in all activities identified above. Primary roles include user needs assessments, and conduct and oversee demonstrations, evaluations, and meteorological assessments.

Juneau work will include requirements determination, as well as engineering test and evaluation. ACT-320 also provides continuous support to AUA-460 in all aviation weather related areas as requested.

For additional information regarding the Aviation Weather Research program, contact:

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System Efficiency